1/5/14

00811340 E.I. Monthly No: EI7905038523 E.I. Yearly No: EI79091747 Title: TRANSPONDER AND ANTENNA TECHNOLOGY FOR 20-30 GHz COMMUNICATION SATELLITES.

Author: Cuccia, C. Louis; Varney, Joel; Ford, David B.

Corporate Source: Ford Aerosp & Commun Corp, Palo Alto, Calif

Source: Wescon Technical Papers v 22, Pap Presented at the West Electron Show and Conv, Los Angeles, Calif, Sep 12-14 1978. Publ by Electron Conv, El Segundo, Calif, 1978 Pap 31/4, 12 p

Publication Year: 1978

CODEN: WETPA4

Language: ENGLISH

Journal Announcement: 7905

Abstract: The Japanese Experimental Communication Satellite (CS) was launched into geosynchronous orbit in December 1977 and represents a landmark in the use of the 20-30 GHz satellite communication bands, providing six transponder channels at these frequencies, each 200 MHz wide, for multi-megabit digital transmission. The hardware used in this satellite is described to illustrate both the technological state-of-the-art of components and antennas suitable for use at these mm-wave frequencies and also to point up the problems arising at these frequencies where tolerances and technologies are pushed to their virtual limits by the high frequencies involved. The types of antennas suitable for producing shaped beam, and the component technology for obtaining the optimum satellite sensitivity (G/T) and EIRP are discussed. Other satellite hardware technologies applied to existing mm-wave satellites are also discussed. New emerging technologies such as FET's and high speed switches and demodulator-modulator systems which can be applied to later generations of mm-wave satellites designed for digital communications are considered. 9 refs.

Descriptors: *TELECOMMUNICATION SYSTEMS, SATELLITE RELAY; TELECOMMUNICATION EQUIPMENT; ANTENNAS

Classification Codes: 716 (Radar, Radio & TV Electronic Equipment) 71 (ELECTRONICS & COMMUNICATIONS)

1/5/15

00770694 E.I. Monthly No: EI7812094595

Title: DIGITAL SATELLITE COMMUNICATIONS -- SYSTEMS, COMPONENTS, AND LIMITATIONS.

Author: Cuccia, C. Louis

Corporate Source: Ford Aerosp & Commun Corp, Palo Alto, Calif

Source: Dig Tech Pap IEEE MTTS Int Microwave Symp Ottawa, Ont, Jun 27-29 1978. Publ by IEEE (Cat n 78CH1355-7 MTT), New York, NY, 1978 p 463-465 Publication Year: 1978

CODEN: DIMSD4 ISSN: 0149-6298

Language: ENGLISH

Journal Announcement: 7812

Abstract: Digital satellite communications is conducted in a bandwidth and power limited system of noise contributors, filters, nonlinear amplifiers, and adjacent channel interference. This paper discusses the overall system architecture, identifying all types of filters, amplifiers, and modulation techniques in a system involving a transmitting earth terminal and up-link, a satellite transponder, and a down-link and receiving earth terminal which includes the receivers. The parameters relating to overall link performance are discussed for a wide variety of modulation techniques and for various bandwidth efficiencies. The text of this paper is in digest form.

Descriptors: *TELECOMMUNICATION SYSTEMS, SATELLITE RELAY; DIGITAL COMMUNICATION SYSTEMS

Classification Codes: 716 (Radar, Radio & TV Electronic Equipment) 71 (ELECTRONICS & COMMUNICATIONS)

1/5/16

00736189 E.I. Monthly No: EI7808059419 E.I. Yearly No: EI78054499 Title: PSK AND QPSK MODULATORS FOR GIGABIT DATA RATES.

Author: Cuccia, C. Louis; Matthews, E. Wesley

Corporate Source: Ford Aerosp & Commun Corp, Palo Alto, Calif

Source: Dig Tech Pap IEEE MTTS Int Microwave Symp San Diego, Calif, Jun 21-23 1977. Publ by IEEE (77CH1219-5 MTT), New York, NY, 1977. Available from IEEE, Piscataway, NJ p 208-211

Publication Year: 1977

CODEN: DIMSD4 ISSN: 0149-6298

Language: ENGLISH

Journal Announcement: 7808

Abstract: PSK modulators must meet many new requirements which were not of importance only a few years ago; i. e. , the ability to switch phase at subnanosecond rates, the ability to produce PSK and QPSK carriers at data rates from 50 Mbps to in excess of one gigabit, the ability to produce modulated carriers at power levels in excess of one watt, and the ability to produce QPSK carriers at millimeter wave frequencies up to 100 GHz. This paper reviews the original technologies employed during the 1960's and 1970's for low data rate carriers at lower microwave frequencies and addresses new advances in switching speeds using dual gate FET's, higher power modulators using special driver circuits, and the use of multipliers to develop PSK carriers well into the millimeter frequencies above 50 Ghz. The text of this paper is in digest form. 7 refs.

Descriptors: *MODULATORS--*Microwaves; PHASE MODULATION--Phase Shift Keying; TRANSISTORS, FIELD EFFECT--Applications

Identifiers: GIGABIT DATA RATES

Classification Codes: 713 (Electronic Circuits); 716 (Radar, Radio & TV Electronic Equipment)

71 (ELECTRONICS & COMMUNICATIONS)

1/5/17

00712772 E.I. Monthly No: EI7805038314 E.I. Yearly No: EI78087114 Title: BASELINE CONSIDERATIONS OF BEAM SWITCHED SS-TDMA SATELLITES USING BASEBAND MATRIX SWITCHING.

Author: Cuccia, C. Louis; Davies, Richard S.; Matthews, E. Wesley Corporate Source: Ford Aerosp & Commun Corp, Palo Alto, Calif

Source: Conf Rec Int Conf Commun ICC '77, Chicago, Ill, Jun 12-15 1977. Publ by IEEE (Cat n 77CH1209-6 CSCB), New York, NY, 1977 v 1 p 126-13 Publication Year: 1977

CODEN: CICCDV ISSN: 0536-1486

Language: ENGLISH

Journal Announcement: 7805

Abstract: A discussion is presented of a SS-TDMA switching satellite system using baseband switching and the component technologies which can now make these satellite concepts possible. An illustrated satellite design for the 14. 5 GHz up-link and 12 GHz down-link using forty antenna beams is discussed. This satellite will be based on ATS-6 design and construction, and will use baseband processing and switching on-board the satellite to switch between forty up-links and down-links with a nominal worst case of 20 dB isolation between beams. 6 refs.

Descriptors: *TELECOMMUNICATION SYSTEMS, SATELLITE RELAY; SWITCHING SYSTEMS

Classification Codes: 716 (Radar, Radio & TV Electronic Equipment) 71 (ELECTRONICS & COMMUNICATIONS)

1/5/18

00441214 E.I. Monthly No: EI7503015753 E.I. Yearly No: EI75019643 Title: COMPONENT TECHNOLOGY STATUS OF GIGABIT DATA RATE QUADRIPHASE SYSTEMS.

Author: Cuccia, C. Louis

Corporate Source: Philco-Ford Corp, Palo Alto, Calif

Source: Wescon Technical Papers v 17, for Meet, San Francisco, Calif, Sep 11-14 1973, Pap 24/2, 5 p

Publication Year: 1973

CODEN: WETPA4

Language: ENGLISH

Journal Announcement: 7503

Abstract: The basic technologies which have made possible the development of digital transmission systems using phase-shift-keying operating at gigabit-per-second rates are described. These technologies, based on new high frequency diodes, transistors, and integrated circuits, have produced a family of phase-shift modulators, special multipliers, video amplifiers, and highly stable phase-locked oscillators which can accommodate the subnanosecond switching rates required. 4 refs.

Descriptors: *DIGITAL COMMUNICATION SYSTEMS; MICROWAVE DEVICES; TELECOMMUNICATION SYSTEMS

Classification Codes: 716 (Radar, Radio & TV Electronic Equipment); 718 (Telephone & Line Communications); 714 (Electronic Components)

71 (ELECTRONICS & COMMUNICATIONS)